

CLAIMS

What is claimed is as follows:

1. A locking quick release device for lockingly affixing a removable component to a fixed component, the fixed component having a first member and a second member moveable toward and away from each other between a first position in which the removable component is affixed to the fixed component and a second position in which the removable component is removable from the fixed component, said locking quick release device comprising:

a lever having a handle end and a pivot end, the lever being movable about the pivot end between an open position and a closed position so that movement of the lever to the closed position causes the members to move to the first position and movement of the lever to the open position causes the members to move to the second position; and

a locking mechanism operatively combined with the handle end of the lever to selectively prevent movement of the lever about its pivot end when the locking mechanism is actuated into a locked position.

2. The locking quick release device of Claim 1 in which the locking mechanism has a latching mechanism; and

a receiving member is combined with the fixed component for receiving the latching mechanism to provide for locking of the lever to the fixed component and thereby prevent removal of the removable component from the fixed component when the locking mechanism is actuated into a locked position.

3. The locking quick release device of Claim 2 wherein the receiving member is combined with the lever.

4. The locking quick release device of Claim 1 wherein the locking mechanism and lever are combined with the removable component.

5. The locking quick release device of Claim 1 wherein the locking mechanism and lever are combined with the fixed component.

6. The locking quick release device of Claim 1 wherein the lever further comprises a cam surface near the lever pivot end so that movement of the lever to the closed position moves the first and second members to the first position in which they are closer together, and movement of the lever to the open position moves the first and second members to the second position in which they are farther apart.

7. The locking quick release device of Claim 6 wherein the first and second members are combined with a collar adapted to receive the removable component and the removable component is a bicycle seat post, the diameter of the collar becoming smaller as the lever is moved to the closed position.

8. The locking quick release device of Claim 2 wherein the locking mechanism has a first end and a second end with a key slot at the second end, said key slot being adapted to receive a key.

9. The locking quick release device of Claim 8 wherein the latching mechanism is turnable between a first and a second position when the key is inserted into and engaged within the key slot.

10. The locking quick release device of Claim 9 wherein the receiving member comprises a catch mechanism that prevents the lever from moving to the open position when the latching mechanism is engaged in its second position and the lever is in the closed position.

11. The locking quick release device of Claim 10 wherein the catch mechanism is comprised of locking pins.

12. The locking quick release device of Claim 1 further comprising a bore through both the first and the second members; and

a threaded member having a first end and a second end with threads on the first end, said threaded member second end combined with the lever near the lever pivot end, said threaded member passing through the bore with said threaded member first end being threaded into one of the members so that rotation of the lever causes the threaded member to move the first and second members closer together and farther apart.

13. The locking quick release device of Claim 1 further comprising a bore through both the first and the second members;

a threaded member having a first end and a second end with threads on the first end, said threaded member second end combined with the lever near the lever pivot end, said threaded member passing through the bore; and

a thumb screw threaded onto the threaded member first end, said thumb screw capable of moving the first and second members closer together and farther apart when the thumb screw is moved relative to the threaded member.

14. The locking quick release device of Claim 1 wherein the locking mechanism is a combination lock.

15. The locking quick release device of Claim 1 wherein the latching mechanism is a locking plate.

16. The locking quick release device of Claim 1 wherein the removable component is a hub and axle assembly for a bicycle wheel, and the locking quick release device is attached to the hub and axle assembly.

17. The locking quick release device of Claim 1 wherein the removable component is a bicycle seat assembly, and the locking quick release device is attached to the bicycle seat assembly.

18. A method for locking and unlocking a removable component to a bicycle frame wherein the removable component is positioned between two holding members tightened by a movable lever that includes a locking mechanism that is engaged with a receiving member, said method comprising:

inserting the removable component between the holding members;

tightening the removable component between the holding members by moving the lever;

moving the lever to a closed position wherein a portion of the locking mechanism becomes engaged with the receiving member; and

operating the locking mechanism so that the lever is locked in the closed position.

19. The method of claim 18 wherein the locking mechanism includes a key slot adapted to receive a key.

20. The method of claim 19 further comprising engaging the locking mechanism using the key.

21. The method of claim 18 wherein the lever includes a cam surface so that as the lever is moved toward the receiving member, the holding members are drawn closer together to further tighten the removable component in between the holding members.

22. The method of claim 18 wherein the lever comprises the locking mechanism.